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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
DAVIS, OCTAVIA L	

ART UNIT	PAPER NUMBER
2855	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/549,459	MICHEL, FRANK	
	Examiner	Art Unit	
	OCTAVIA DAVIS	2855	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *50-68* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *50-68* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 51 is rejected under 35 U.S.C. 102(b) as being anticipated by Casler (5,015,926).R

Regarding claim 51, Casler discloses an electronically controlled force application mechanism for exercise machines that creates, controls and transmits a precise and adjustably applied resistive force comprising an input drive shaft 38, 52, an output drive shaft 40, and a housing 30, 32, 34, 36 on which a centering flange(s) 20b, 52a and flange 54a are provided, wherein the housing is provided with at least one associated strain sensor 60 and an electronics device 70 including a display 90 (See Col. 4, lines 62 – 68 and Col. 6, lines 5 – 12, 34 – 45 and 55 – 65) and the strain sensor 60 is arranged close to attachment screw holes 40d in the attachment flange 52a (See Col. 5, lines 44 – 48, See Fig. 1), the strain sensor 60 in the form of a strain gage and connected to an evaluation unit 70, 80 and in indicating device 90 from which data is transmitted and read (See Col. 6, lines 39 – 54).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the

subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 50, 53 - 55 and 60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Casler in view of Grunbaum (4,384,493) and Tortora et al ((6,026,711).

Regarding claim 50, Casler discloses all of the limitations of these claims except that the strain sensor is provided on the housing and that the centering flange has at least one radially circumferential groove. However, Grunbaum discloses a torque measuring device comprising a motor housing 1 including an extension 2 and a load cell 3 connected to the extension forming a unitary unit (See Col. 2, lines 24 – 29 and 54 – 57). Tortora et al disclose a harmonic drive bearing arrangement comprising a transmission 10 that includes a flange 44 having an annular peripheral surface 56 that defines an annular radially outermost flange and that includes shallow circumferentially arranged grooves 58 thereon (See Col. 5, lines 16 – 18).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Casler according to the teachings of Grunbaum and Tortura et al for the purposes of, advantageously providing an improved torque measuring device which is of particular benefit for use with flange-type electric motors and that which is simple and inexpensive (See Grunbaum, Col. 1, lines 47 – 53) and advantageously using a flange that enables the elimination of one or more transmission assembly parts which would otherwise have to be manufactured and assembled according to high tolerance requirements (See Tortora et al, Col. 5, lines 30 – 34).

Regarding claim 53, in Casler, the at least one strain sensor 60 is arranged close to the flange 54a (See Fig. 1).

Regarding claim 54, in Casler, the strain sensor 60 is arranged in a cylindrical area 54 of the attachment flange 54a (See Col. 6, lines 34 – 45, See Fig. 1).

Regarding claim 55, Casler and Graunbaum disclose all of the limitations of these claims except a plurality of sensors are arranged radially distributed around the flange. However, it would have been obvious to one of ordinary skill in the art to duplicate the sensors to provide a more efficient result. In re Harza, 274 F.2d 669, 124 USPQ 378 (CCPA 1960).

Regarding claim 60, in Casler, the strain sensor 60 in the form of a strain gage and connected to an evaluation unit 70, 80 and in indicating device 90 from which data is transmitted and read (See Col. 6, lines 39 – 54).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 52, 57 and 65 – 68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Casler, Grunbaum and Tortura et al, as applied to claims 50, 53 – 55 and 60 above, and further in view of Matsushima et al (6,066,907).

Regarding claim 52, Casler, Grunbaum and Tortura et al disclose all of the limitations of these claims except that the centering flange has at least one radially circumferential groove including a damping element. However, Matsushima et al disclose a brush holding device comprising an electric motor 2 (See Col. 4, line 32), an input drive shaft 9a, an output drive shaft 3, and a housing 4 on which a centering flange 8 is provided, wherein the centering flange has at least one radially

circumferential groove 23 in which at least one damping element 24 is inserted (See Col. 2, lines 66 – 67, Col. 3, lines 1 – 7 and 64 – 67 and Col. 4, lines 1 - 19).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Casler, Grunbaum and Tortora et al according to the teachings of Matsuhima et al for the purpose of, advantageously suppressing noise and cracks caused by engine vibration and suppressing local wear and cracks of brushes (See Matsuhima et al, Col. 1, lines 44 - 51).

Regarding claim 57, in Casler, the attachment flange 52a is at least partially coaxially separated by a member B2 from a casing surface of the housing 32, 34, 36 (See Col. 5, lines 28 – 34).

Regarding claims 65 and 66, in Casler, the damping element 24 is in the form of an elastically deformable rubber element and O-ring (See Col. 3, lines 64 – 67 and Col. 4, lines 1 – 6).

Regarding claim 67, in Casler, a plurality of circumferential grooves 23 are provided that are spaced apart from one another and are parallel to one another, and are provided in the flange 8 for insertion of a plurality of damping elements 24 (See Fig. 15).

Regarding claim 68, in Casler, the at least one damping element 24 overhangs the outside of a casing surface 5 of the flange 8 on the outside (See Col. 4, lines 8 – 30, See Fig. 1).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 56, 59 and 61 – 64 are rejected under 35 U.S.C. 103(a) as being unpatentable over Casler (5,015,926), Grunbaum and Tortura et al, as applied to claims 50, 53 – 55 and 60 above, and further in view of Sakakibara et al (4,724,711).

Regarding claims 56 and 59, Casler, Grunbaum and Tortura et al, disclose all of the limitations of these claims except that the strain sensor is arranged underneath the flange on the cylindrical housing, the flange having at least one constriction in the area of the incision, wherein the constriction is an at least partially radially circumferential constriction and holds the least one strain sensor. However, Sakakibara et al disclose a torque detector comprising a strain gage(s) 41a – 41d (See Figs. 1 and 4) located underneath a flange 37b on a housing 11 and flanges 37b, 37c having a constriction (See Fig. 1) in an area of an incision that holds the strain sensor (See Col. 2, lines 54 – 57 and Col. 4, lines 22 – 24 and 33 – 45, See Fig. 7).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Casler, Grunbaum and Tortura et al according to the teachings of Sakakibara et al for the purpose of, advantageously providing a torque detector using strain gages on a cantilever which is easily exchangeable (See Sakakibara et al, Col. 1, lines 55 – 59).

Regarding claims 61 and 62, Casler, Grunbaum and Tortura et al disclose all of the limitations of these claims except that force and/or a torque is determined by the at least one strain sensor and if a predetermined limit value is exceeded, an alarm signal or a switch-off signal can be generated and displayed on the indicating electronics device, the signals being recorded over time, in order to determine the operating state of the transmission, and being stored in the evaluation unit. However, in Sakakibara et al, strain gage units 140,143 detect the torque and when a signal indicative

of a predetermined limit value is outside a predetermined range an alarm signal is displayed on an indicating device 158 (See Col. 11, lines 3 – 16 and Col. 12, lines 1 – 8).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Casler, Grunbaum and Tortura et al according to the teachings of Sakakibara et al for the purpose of, providing an torque detector the enables the abnormality of the torque detector to be well judged and the easily corrected in an abnormality protective action (See Sakakibara et al, Col. 17, lines 49 – 53).

Regarding claims 63 and 64, in Casler, the strain sensor 60 is in the form of a strain gage and is connected to an evaluation unit 70, 80 and an indicator 90 from which data is read and displayed (See Col. 6, lines 39 – 54).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claim 58 is rejected under 35 U.S.C. 103(a) as being unpatentable over Casler, Grunbaum, Tortura et al and Matsushima et al, as applied to claims 50, 52 – 55, 57, 60 and 65 68 above, and further in view of Sakakibara et al (4,724,711).

Regarding claim 58, Casler, Grunbaum, Tortura et al and Matsushima et al disclose all of the limitations of these claims except that the strain sensor is arranged underneath the flange on the cylindrical housing, the flange having at least one constriction in the area of the incision, wherein

the constriction is an at least partially radially circumferential constriction and holds the least one strain sensor. However, Sakakibara et al disclose a torque detector comprising a strain gage(s) 41a – 41d (See Figs. 1 and 4) located underneath a flange 37b on a housing 11 and flanges 37b, 37c having a constriction (See Fig. 1) in an area of an incision that holds the strain sensor (See Col. 2, lines 54 – 57 and Col. 4, lines 22 – 24 and 33 – 45, See Fig. 7).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Casler, Grunbaum, Tortura et al and Matsushima et al according to the teachings of Sakakibara et al for the purpose of, advantageously providing a torque detector using strain gages on a cantilever which is easily exchangeable (See Sakakibara et al, Col. 1, lines 55 – 59).

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Octavia Davis whose telephone number is 571-272-2176. The examiner can normally be reached on Mon through Thurs from 9 to 5. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz, can be reached on 571-272-2180. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system,

see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Edward Lefkowitz/

Supervisory Patent Examiner, Art Unit 2855

OD/2855

6/20/08